



State of New Hampshire
Department of Health and Human Services
Division of Public Health Services



NH Public Health Laboratories

How to Submit Clinical Specimens for Arboviral Testing

All suspect cases of West Nile virus should be reported to the New Hampshire Communicable Disease Control Section at 1-800-852-3345, ext. 4496 or at (603) 271-4496 before specimens are submitted.

Diagnostic Testing

The arboviral-testing panel includes West Nile virus (WNV), Eastern Equine Encephalitis virus (EEE), St. Louis Encephalitis virus (SLE), and may include Powassan virus (depending on availability of reagents).

Diagnostic testing for West Nile virus at the PHL includes serological tests, viral culture, and testing by molecular methods.

Specimens: Collect both CSF and Serum, if possible.

- **Cerebrospinal Fluid (CSF):** As early as the first few days of illness, IgM antibody to WNV can be demonstrated in CSF by antibody capture ELISA.

Although the viremia for most arboviruses ceases by onset of symptoms, virus also may be isolated, or detected by RT-PCR, in acute-phase CSF specimens. **PCR testing will only be conducted on very acute (0-3 days post onset) specimens.**

Since other viruses can cause encephalitis, culture for additional viruses (other arboviruses, enteroviruses, and herpesviruses) may be performed at the discretion of the laboratory.

Submit 2-5 ml in sterile, empty, screw-capped container. If less than 2 ml is received, testing will be prioritized as follows: IgM ELISA (PRNT confirmation if ELISA positive), viral culture and RT-PCR.

- **Serum:** Acute serum (3ml) should be collected and sent immediately to PHL for testing. Serum will be tested for IgM antibody to WNV; if specimen is IgM positive, then a convalescent specimen will be requested to determine the timing of infection.

Ideal timing of specimens for serology:

Specimen	Timing
Acute	3 to 10 days after onset of symptoms
Convalescent	2-3 weeks after acute sample

The following information is critical for accurate interpretation of test results. **Specimens cannot be tested unless complete information is provided:**

- Date of onset of disease symptoms
- Date of specimen collection
- Unusual immunological status of patient (e.g. immunosuppression)
- Brief clinical summary including suspected diagnosis (e.g., encephalitis or meningoencephalitis)
- Current address and travel history to flavivirus-endemic areas
- History of prior vaccination against flavivirus disease (e.g., yellow fever, Japanese encephalitis, or Central European encephalitis)
- Disease history (e.g., previous history of viral encephalitis or Dengue fever)

Procedure for submission of serum or CSF:

1. Perform lumbar puncture or venipuncture (SST or whole blood tube) by standard aseptic technique.
2. Label the specimen tubes with patient's full name and the date of collection.
3. If possible, centrifuge blood to separate serum.
4. For CSF, tightly seal cap and then wrap parafilm around seal to provide additional protection from leakage during transport.
5. Fill out requisition form completely, being sure to request "WNV serology", "viral culture (CSF)", or "WNV RT-PCR"
6. Place CSF inside zip-lock biohazard bag and seal.
7. Place blood tube inside inner metal liner. Be sure there is enough absorbent material to cushion tubes in transit or to absorb liquid in case of leaking or broken tubes. Cap liner tightly.
8. Wrap the requisition form around the OUTSIDE of the inner metal liner.
9. Insert the metal liner into the outer cardboard container, and cap tightly. Make certain that the mailing container is labeled with the name and address of the NH PHL.
10. Ship to the PHL within 24 hours of collection. Refrigerate at 2-8 °C if is not possible to mail specimen immediately.

The WNV collection kit consists of:

- ❖ A labeled cardboard outer mailing container
- ❖ An aluminum inner liner
- ❖ An SST vacutainer blood collection tube
- ❖ A polypropylene tube and parafilm for transport of CSF
- ❖ Absorbent material
- ❖ Requisition form

To order specimen collection kits, please call 271-4661, or 1-800-852-3345, ext. 4661.

**For further technical information regarding diagnostic testing,
please call Sue MacRae, Virology/STD, at 271-2764, or 1-800-852-3345, extension 2764.**